

**Comment on: "Spin State Transition in LaCoO<sub>3</sub>  
studied using Soft X-ray absorption spectroscopy  
and Magnetic Circular Dichroism":  
wrong physics of LS, IS and HS spin states**

after rejection of Letter LQ10665 - "LaCoO<sub>3</sub> - from first principles"  
and Comment LAK1030: physics of LS, IS and HS spin states in  
LaCoO<sub>3</sub>

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In a recent paper Haverkort *et al.* [1] have discussed low-spin (LS), intermediate-spin (IS) and high-spin (HS) states in LaCoO<sub>3</sub>. We criticize this Letter as the discussed physics is incorrect, i. e. not physically adequate. Central aspects of the Letter related to the description of the spin-states in LaCoO<sub>3</sub> and resulting properties are wrong.

In particular, we question the physical adequacy of the energy-level discussion of a CoO<sub>6</sub> cluster to LaCoO<sub>3</sub> as well as to other Co<sup>3+</sup> oxides.

A such form of the Comment is demanded by the Editor instead of a real scientific comment and discussion of physics of LaCoO<sub>3</sub>. A longer and more scientific explanation of our scientific view on LaCoO<sub>3</sub> a reader can find elsewhere.

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[1] M. W. Haverkort, Z. Hu, J. C. Cezar, T. Burnus, H. Hartmann, M. Reuther, C. Zobel, T. Lorenz, A. Tanaka, N. B. Brookes, H. H. Hsieh, H. -J. Lin, C. T. Chen, and L. H. Tjeng, *Phys. Rev. Lett.* **97**, 176405 (2006); *cond-mat/0606285*.

[2] Z. Ropka and R. J. Radwanski, *Phys. Rev. B* **67**, 172401 (2003).

**Submission of short Comment to PRL:  
wrong physics of LS, IS and HS spin states in  
LaCoO<sub>3</sub>**

after rejection of Letter LQ10665 - "LaCoO<sub>3</sub> - from first principles"  
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Dear Editor,

Such short form of the Comment has been demanded by Your email of  
Jan. 30, 2007 in our submission of LAK1030.

We cordially ask for publication of our Comment as our voice in the  
scientific discussion on *3d* oxides.

We soon submit another *3d* oxide, namely FeO after earlier NiO - we  
have largely solved problem of magnetism and electronic structure of *3d*  
oxides.

In order to avoid your favorite statement "unsuitable" we inform  
You, that magnetism and electronic structure of *3d* oxides are the most  
important scientific problems.

Sincerely Yours,

Z. Ropka and R. J. Radwanski